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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/101,833	01/29/1999	YASUJI HIRAMATSU	PM255101	1115

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ALEXANDRIA, VA 22314

EXAMINER

EVANS, GEOFFREY S

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 06/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/101,833

Applicant(s)

HIRAMATSU, YASUJI

Examiner

Geoffrey S. Evans

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5,7-11,26 and 27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5,7,10,11,26 and 27 is/are allowed.
- 6) ☒ Claim(s) 1-5,8 and 9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>20060306</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to the request for continued examination (RCE) of 6 March 2006.
2. Claims 8/6, 9/8/6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Please note that claim 6 has been cancelled. Please amend claim 8 to no longer depend upon claim 6. Claim 9/8/6 is indefinite solely because it depends upon claim 8.
3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
4. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakatani et al. in U.S. Patent No. 5,811,574 in view of Oku in Japan Patent No. 2-170,595. Nakatani et al. discloses a laser drilling apparatus (e.g. see column 1, lines 10-11) for a multilayered printed wiring board comprising a laser source (element 11), a scanning head (element 14), a camera (element 82, see column 15, lines 35-37), a computer (element 9, see column 13, lines 55-63) that must have a memory to store information regarding the alignment mark (see column 8, lines 11-16) used to align the workpiece by moving the workpiece on the table. Nakatani et al. does not disclose having the positioning mark covered. Oku teaches a positioning mark (element 16, see figure 1)

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inside a multilayer printed board and using an X-ray ITV camera to locate its position. It would have been obvious to adapt Nakatani et al. in view of Oku to provide this to physically protect the positioning.

5. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakatani et al. in U.S. Patent No. 5,811,574 in view of Japan Utility model 3-50,372, published 16 May 1991. Japan Utility model 3-50372 teaches having the recognition (positioning) mark in insulating material of a resin (i.e. epoxy plastic) and making the circuit pattern and the recognition (positioning) mark out of copper and simultaneous creation of these elements. It would have been obvious to adapt Nakatani et al. in view of Japan Utility model 3-50,372 to provide this to reduce the cost and time for creating a recognition (positioning) mark and to have an insulating layer over the recognition (positioning) mark to protect the positioning mark from accidental physical damage.

6. Claims 1 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumar in U.S. Patent No. 5,227,013 in view of Koide et al. in U.S. Patent No. 5,670,067 and either Oku in Japan Patent No. 2-170,595 and Japan Utility model 3-50,372, published 16 May 1991. Kumar discloses a method of laser drilling via holes (see column 5, lines 46-500 in a multilevel printed wiring board. Kumar does not disclose a method of properly aligning the apparatus using a covered alignment mark in the wiring board and using a computer with an associated camera to align the apparatus. Koide et al. teaches forming an alignment mark (see column 4, lines 24—31), using a camera to identify the location of the mark, and using a computer to control an XY table and optical elements so that a laser beam illuminates a desired spot on the workpiece. Oku

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teaches a positioning mark (element 16, see figure 1) inside a multilayer printed board and using an X-ray ITV camera to locate its position. Alternatively, Japan Utility model 3-50372 teaches having the recognition (positioning) mark in insulating material of a resin (i.e. epoxy plastic). It would have been obvious to adapt Kumar in view of Koide et al. and either Oku or Japan Utility model patent 3-50,372 to provide this to properly align a multilayered wiring board for via processing and to protect the positioning mark from damage.

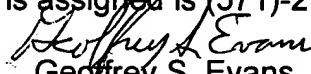
7. Claims 5,7,10,11,26,27 are allowed.

8. Claims 8 and 9 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey S Evans whose telephone number is (571)-272-1174. The examiner can normally be reached on Mon-Fri 6:30AM to 4:00 PM, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on (571)-272-1292. The fax phone number for the organization where this application or proceeding is assigned is (571)-273-8300.

GSE


Geoffrey S. Evans
Primary Examiner
Group 1700